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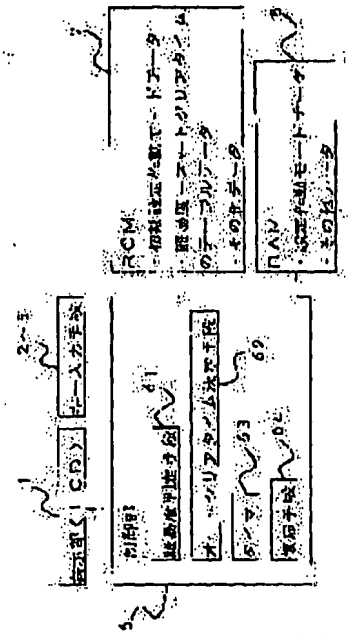
(54) IMAGE FORMING DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To solve the problem that a complicated set operation mode is cleared soon or miscopying is caused because of the holding of a simple set operation mode since the automatic clearing time of a conventional image forming device is fixed or changed only by user's change of settings.
SOLUTION: A means which decides the difficulty of a set operation mode is provided and an automatic clearing time is determined according to its decision result. Consequently, an easy set operation mode is put back to an initial set operation mode in a short time and a difficult set operation mode is put back to the initial set operation mode a long time later.



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* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to a copying machine, a laser beam printer, facsimile, etc., especially relates to an autoclear function.
[0002]
[Description of the Prior Art] When using a copying machine conventionally, although a user sets up if needed in exposure density, a scale factor, a paper size, a margin width, frame deleting, etc., if this user ends a job and predetermined time amount (auto clear time) passes, the above-mentioned setup of operation will return to the initialization action mode which registered a setup of operation used most ordinarily automatically. When the next user uses it by carrying out like this, an initial actuation setup can perform. In addition, time amount can be chosen or said auto clear time can also be made into the mode in which a user does not return according to liking.
[0003]
[Problem(s) to be Solved by the Invention] However, unless the auto clear timer passed and it did a complicated setup again once again while having turned over the following page even if it has set up frame deleting, a scale factor, exposure, etc. exquisitely when the auto clear time is a short setup, for example and a user copies a book manuscript, or while having gone to take another book etc., it might be unable to go by the conventional technique.
[0004] Moreover, auto return time amount being a long setup, for example, copying, without the next user noticing this, when the user who was using it before is working by dark exposure and the number of copies of the a large number section, and carrying out futility of a form often occurs.
[0005]
[Means for Solving the Problem] In order that this invention may solve the above-mentioned technical problem, after actuation of the last of image formation equipment is completed as the 1st invention In the image formation equipment which has the autoclear function which will return the setting operating mode of image formation equipment to an initialization operating mode if predetermined time amount passes A difficulty judging means to judge the difficulty of the setting operating mode which a user sets up, An auto clear time decision means to determine an auto clear time based on the result of said difficulty judging means, After actuation of the last of the image formation equipment concerned is completed, if said auto clear time passes, the image formation equipment characterized by having the control means which returns the setting operating mode of the image formation equipment concerned to an initialization operating mode will be used.
[0006] In the image formation equipment which has the autoclear function which will return the setting operating mode of image formation equipment to an initialization operating mode if predetermined time amount passes as the 2nd invention after actuation of the last of image formation equipment is completed A difficulty judging means to judge the difficulty of the setting operating mode which a user sets up, and when said difficulty is high If a user pushes a start button at the time of the next activity, the alarm display which stimulates the check of setting-operation will be performed, and an activity is

started after this check termination. When said difficulty is low, Progress of said auto clear time uses the description for the image formation equipment characterized by having the control means which returns the setting operating mode of the image formation equipment concerned to an initialization operating mode.

[0007] As the 3rd invention, said difficulty judging means uses the image formation equipment of a publication for the 1st invention or invention of the 2nd characterized by judging difficulty by the number of items with which a setup with the setting operating mode and initialization operating mode which a user sets up is different, and weighting of each setting operating mode.

[0008] As the 4th invention, said difficulty judging means is image formation equipment given in the 1st invention or invention of the 2nd by which it is characterized [which is judged according to time amount after a user starts a setting operating mode until it pushes a start button].

[0009] As the 5th invention, said difficulty judging means uses the image formation equipment of a publication for the 1st invention or invention of the 2nd by which it is judging-with difficulty being high characterized, when a specific operating mode is specified.

[0010]

[Function] Since the difficulty of the setting operating mode which the user set up is judged in the 1st invention and an auto clear time is determined Since the reset time to an initialization operating mode will become short if the setting operating mode which the user set up is easy, and the time amount holding the setting operating mode will become long if a setting operating mode is complicated An immediately reproducible setting operating mode is cleared for a short time, and the setting operating mode which time and effort requires for setting up again has time allowances until it is cleared.

[0011] Moreover, in the 2nd invention, the difficulty of the setting operating mode which the user set up is judged. If the setting operating mode which the user set up is easy and an auto clear time will pass, the setting operating mode of the image formation equipment concerned will be returned to an initialization operating mode. Since the alarm display which stimulates a check will be performed if a setting operating mode is complicated It becomes without an immediately reproducible setting operating mode being cleared for a short time, and the setting operating mode which time and effort requires for setting up again not being cleared, and copying, while the next operator has been a complicated setup, and carrying out futility of a form.

[0012] In the 3rd invention, since the difficulty judging means used by the 1st invention or invention of the 2nd judges difficulty by comparing the setting operating mode decided beforehand with the setting operating mode which the user set up, it can perform the judgment of exact difficulty.

[0013] In the 4th invention, since it judges with its difficulty being low, and the setting operating mode which can set up the difficulty judging means used by the 1st invention or invention of the 2nd in a short time having high difficulty when a setup takes time amount, the judgment of difficulty is attained according to a user's skillful condition.

[0014] By 5th invention, since the difficulty judging means used by the 1st invention or invention of the 2nd judges with difficulty being high when the specific setting operating mode decided beforehand is operated, the judgment of difficulty of it is attained for little information.

[0015]

[Example] The control unit of the image formation equipment which adopts this invention is explained based on drawing 2 - drawing 5 . The basic screen first shown in drawing 2 is explained. A display 1 is a LCD display and serves as the touch panel with the display. On this screen, a setup of a scale factor, a cassette and selection of a bypass, a double-sided setup, photograph mode, exposure, etc. can be performed. If the basic tab 111, the variable power tab 131, and the functional tab 151 touch each tab, they will move to the setting screen of the function. The basic guidance display 112 tells a user about information. "it can copy. 1 (sheet every)" etc. is displayed. The setting display 120 displays a current setup "100% and an automatic form" etc. Except that as which others were chosen by setup, as it is all over drawing, a mask is covered and the current setting operating mode is intelligible. this screen -- scale-factor: -- 100%, the 1st KASSETO to which A4 width was set by copy number-of-sheets:1 sheet and automatic form selection is chosen, and the strength of middle has exposure mostly. Photograph

mode etc. is not chosen.
[0016] The ten key 2, the stop/clear key 3, the all clear key 4, and the start key 5 are formed in the right-hand side in drawing. Said ten key 2 is used for numerical inputs, such as copy number of sheets, said stop / clear key 3 are keys which cancel the last input, and said all clear key is a key which returns the set-up setting operating mode to an initialization operating mode by one-touch. Said start key 5 is used as keys, such as decision in the mode, as an initiation key of a copy.
[0017] If the above-mentioned variable power tab 131 is chosen, it will change to the variable power screen shown in drawing 3 . The variable power guidance display 132 displays information, such as "please set up a scale factor", on a user. It returns to a basic screen, returning the rate of variable power inputted when the discharge key 133 was chosen to 100% of the early rate of variable power. The fixed variable power key 134 is a key to which, as for modification of B4->A4, modification of A4->A3, A5->A4, and B5->B4 makes a change of A3->A4 and A4R->A5 and B4->B5 for 141% of fixed variable power 115% 81% 70% based on manuscript size and a paper size, respectively, as for modification of B4->A3, B5->A4, and B5->A4. If the 50% key 135 and the 200% key 136 are touched, respectively, they will become 50% and 200% of variable power setup. The variable power setting display 137 shows the current rate of variable power. If it continues pushing whether the expansion key 138 and the contraction key 139 are touched, respectively, a scale factor is changeable by 1% unit of scale factors. It returns to a basic screen, with the rate of variable power held inputted when the setting key 140 was chosen.
[0018] If the above-mentioned functional tab 151 is chosen next, it will change to the function selection screen shown in drawing 4 . The functional guidance display 152 displays information, such as "please choose a function", on a user. The double-sided key 153 which is a key which chooses a function as the bottom of it, a split key 154, the margin key 155, the OHP interleaving paper key 156, the sheet key 157, the frame deleting key 158, etc. are put in order. If said double-sided key 153 is chosen, it will become double-sided copy mode, and if said split key 154 is chosen, A3 manuscript will be divided and copied to two sheets of A4 forms, for example. If said margin key 155 is chosen, it will change to a screen (not shown) detailed to the pan, and a setup of a margin will be attained. If said OHP interleaving paper key is chosen, feeding to it paper and copying an OHP sheet from the manual paper feed section, paper will be fed to a form from other cassettes, and it will consider as interleaving paper. If said sheet key is chosen, it will change to a screen (not shown) detailed to the pan, and a setup of an OMOTE cover, a URA cover, a batch form, etc. will be attained.
[0019] If said frame deleting key 158 is chosen, it will change to the frame deleting mode selection screen 159 detailed to a pan as shown in drawing 5 . It displays "it is frame deleting copy mode", "please choose the class of manuscript", etc. on the frame deleting mode guidance display 1591. If the returning key 1592 is chosen, it will return to said function selection screen 15. The frame deleting width-of-face selection key 1593 performs frame deleting of the selected width of face. When the sheet frame deleting key 1594 is chosen, it is a deed about the frame deleting of the form circumference. Selection of the book frame deleting 1595 performs frame deleting the circumference of a form, and near the center of a manuscript longitudinal direction. If the arbitration setting frame deleting key 1596 is chosen, it will change to the detailed screen (not shown), and the fine frame deleting which carried out the numerical input will also become possible.
[0020] In addition, if a tab 161 is chosen, it will change to screens (not shown), such as a password input screen, and a department administration screen, a tariff.
[0021] Thus, a setting operating mode has the very complicated various setting operating modes which switch screens, such as a margin, and sheet mode, frame deleting mode, one after another, and perform a numerical input and a fine setup from the easy thing which can be set up only by tampering with a little scale factor, copy number of sheets, exposure, etc. The difficulty judging means of invention in this case judges the former to be what has low difficulty, and judges the latter to be what has high difficulty.
[0022] The block diagram of the image formation equipment which adopts this invention is shown in drawing 1 . A display 1 and a key input means (2-5) are the key inputs of the LCD display and ten key which were mentioned above, a start key, etc. The control section 6 consists of those to which it consists

of the difficulty judging means 61, an auto clear time decision means 62, a timer 63, a return means 64, etc., or each carries out an equivalent operation. Table data, other programs, etc. which determined beforehand the relation between initialization operating mode data or a difficulty-auto clear time are stored in ROM7. The data of the present setting operating mode, the setting data of image formation equipment, etc. are stored in RAM8.

[0023] Then, said difficulty judging means which is the description part of this invention is explained. First, one approach is this 3rd invention and the case where this compares the item which initialization action mode and a user inputted, and a difficult item is more nearly different, so that there are many differences judges with difficulty being high.

[0024]

[Table 1]

パターンA

		倍率	電子ソート	濃度	カセット	両面	分割	マージン	枠消し	シート	OHP合紙
A0	初期設定作動モードデータ	100%	1枚	自動	第1カセット	しない	しない	しない	しない	しない	しない
A	設定作動モードデータ	100%	1枚	フィット	第2カセット	しない	しない	しない	しない	しない	しない
B	同じ=0,違う=1	0	0	1	1	0	0	0	0	0	0
k	重み付け係数	1	1	1	1	2	2	2	3	2	2
C	C=B×k	0	0	1	1	0	0	0	0	0	0
	難易度(Cの合計)	2									

[0025]

[Table 2]

パターンB

		倍率	電子ソート	濃度	カセット	両面	分割	マージン	枠消し	シート	OHP合紙
A0	初期設定作動モードデータ	100%	1枚	自動	第1カセット	しない	しない	しない	しない	しない	しない
A	設定作動モードデータ	113%	1枚	フィット	第2カセット	しない	しない	しない	指定	しない	しない
B	同じ=0,違う=1	1	0	1	1	0	0	0	1	0	0
k	重み付け係数	1	1	1	1	2	2	2	3	2	2
C	C=B×k	1	0	1	1	0	0	0	3	0	0
	難易度(Cの合計)	6									

[0026] For example, as shown in Table 1, the initialization operating modes of image formation equipment were the contents shown in the line of A0, and when a user used, it copied by the setting operating mode of the contents shown in the line of A. In this case, that sum total is calculated by multiplying by the weighting multiplier k set up according to the difficulty of each item to the item and it from which A0 and A are respectively different first. It is set to difficulty =2 in the setting operating mode (pattern A) shown in Table 1 of this example, and is set to difficulty =6 in the setting operating mode (pattern B) shown in Table 2.

[0027] It is this 4th invention as the 2nd approach, and this clocks time amount after a user starts a setting operating mode until it pushes a start button, and judges difficulty. For this reason, difficulty becomes high although difficulty was low although there was nothing from that of time amount simply, and cut in that of time amount. The relation of the time amount and the difficulty which could use the function showing the relation of the time amount and the difficulty which the setting operating mode took at this time, and the setting operating mode took as table data may be stored beforehand. As shown in drawing 6 of this example, when difficulty is determined as a setup from starting function data for 135 seconds, by (Pattern C), it becomes difficulty 5.

[0028] It is this 5th invention as the 3rd approach, and is the approach of judging it as this having high difficulty, when the item which requires a difficult specific setup is operated. When at least one easy thing which can be set up only by this tampering with a little scale factor, copy number of sheets, exposure, etc., such as a very complicated setting operating mode which switches screens, such as =0 with low difficulty, a margin, and sheet mode, frame deleting mode, one after another, and performs a numerical input and a fine setup, is operated, difficulty is the simple judgment approach set to =1 [high].

[0029]

[Table 3]

パターンD

	難易度対象外						難易度対象設定			
	倍率	複写枚数	原先	カセット	両面	分割	マージン	仲消し	シート	OHP合紙
A0 初期設定作動モードデータ	100%1枚		自動	第1カセット	しない	しない	しない	しない	しない	しない
A 設定作動モードデータ	100%1枚		ワン	第2カセット	しない	しない	しない	しない	しない	しない
B 同じ=0,違う=1	判定しない						0	0	0	0
Bに1なし=0(難易度:低い)										
Bに1あり=1(難易度:高い)	0									

[0030]
[Table 4]
パターンE

	難易度対象外						難易度対象設定			
	倍率	複写枚数	原先	カセット	両面	分割	マージン	仲消し	シート	OHP合紙
A0 初期設定作動モードデータ	100%1枚		自動	第1カセット	しない	しない	しない	しない	しない	しない
A 設定作動モードデータ	115%1枚		ワン	第2カセット	しない	しない	しない	設定	しない	しない
B 同じ=0,違う=1	判定しない						0	1	0	0
Bに1なし=0(難易度:低い)										
Bに1あり=1(難易度:高い)	1									

[0031] For example, as shown in Table 3, the initialization operating modes of image formation equipment were the contents shown in the line of A0, and when a user used, it copied by the setting operating mode of the contents shown in the line of A. in this case, the item from which A0 and A are respectively different first is compared, and when the specified thing of 0 which was beforehand made high [difficulty] may be the same, and different and there is one at least 1 in B as 1, it judges with difficulty being high -- the approach is carried out. It is set to difficulty =0 in the setting operating mode (pattern C) shown in Table 3, and is set to difficulty =1 in the setting operating mode (pattern D) shown in Table 4.
[0032] Next, the 1st invention and invention of the 2nd which are performed using these difficulty judging means are explained.
[0033]
[Table 5]

		オートクリアタイム設定レベル					
		L1	L2	L3	L4	L5	
難易度判定結果	0	0	0	0	0	0	
	1	60	120	180	240	360	
	2	60	120	180	240	360	←パターンA
	3	60	120	180	240	360	
	4	120	180	240	360	420	
	5	120	180	240	360	420	←パターンC
	6	180	240	360	420	480	←パターンB
	7	180	240	360	420	480	
	8	240	360	420	480	540	
	9～	240	360	420	480	540	

[0034] In the case where this 1st invention, the 3rd invention, or the 4th invention is used, as shown in Table 5, the table data which determine an auto clear time according to the judgment result of said difficulty judging means and the setting level of the OTOKURIA OTOKURIA time which a user sets up are used. When the user is setting setting level of an auto clear time to L3 by the case where the difficulty judging means of the 3rd invention is Pattern A, an auto return is carried out in 180 seconds.

Moreover, when the user is setting setting level of an auto clear time to L5 by the case where the difficulty judging means of the 3rd invention is Pattern B, an auto return is carried out in 480 seconds, and by the case where the difficulty judging means of the 4th invention is Pattern C further, it becomes as an auto return is carried out in 240 seconds.

[0035]

[Table 6]

難易度判定結果	オートクリアタイム設定レベル L1	L2	L3	L4	L5	
0	無し 0	無し 0	無し 0	無し 0	無し 0	
1	無し 60	無し 120	無し 180	無し 240	無し 360	
2	無し 60	無し 120	無し 180	無し 240	無し 360	←パターンA
3	無し 60	無し 120	無し 180	無し 240	無し 360	
4	警告 —	警告 —	警告 —	警告 —	警告 —	
5	警告 —	警告 —	警告 —	警告 —	警告 —	←パターンC
6	警告 —	警告 —	警告 —	警告 —	警告 —	←パターンB
7	警告 —	警告 —	警告 —	警告 —	警告 —	
8	警告 —	警告 —	警告 —	警告 —	警告 —	
9～	警告 —	警告 —	警告 —	警告 —	警告 —	

[0036] In the case where this 1st invention, the 3rd invention, or the 4th invention is used, the table data which determine the existence and the auto clear time of warning according to the judgment result of said difficulty judging means and the setting level of the OTOKURIA OTOKURIA time which a user sets up as shown in Table 6 are used. When the user is setting setting level of an auto clear time to L3 by the case where the difficulty judging means of the 3rd invention is Pattern A, an auto return is carried out in 180 seconds. moreover, when the difficulty judging means of the case where the difficulty judging means of the 3rd invention is Pattern B, or the 4th invention is Pattern C, or when it comes out and the user is setting setting level of an auto clear time to L5, as it is going to perform the next copy actuation and is sometimes shown at drawing 7 , "frame deleting setup and variable power are set as the basic guidance display 112. Does it continue? Like ", the alarm display which stimulates the check of a setup of operation on a screen is performed, and copy actuation begins by pushing the after start key.

[0037]

[Table 7]

難易度判定結果	オートクリアタイム設定レベル L1	L2	L3	L4	L5	
0	60	120	180	240	360	←パターンD
1	240	360	420	480	540	←パターンE

[0038] In the case where this 2nd invention and the 5th invention are used, as shown in Table 7, the easy table data which determine an auto clear time according to the judgment result of said difficulty judging means and the setting level of the OTOKURIA OTOKURIA time which a user sets up are used. When the user is setting setting level of an auto clear time to L3 by the case where a difficulty judging means is Pattern D, an auto return is carried out in 180 seconds. Moreover, when the user is setting setting level of an auto clear time to L5 by the case where a difficulty judging means is Pattern E, it becomes as an

auto return is carried out in 540 seconds.
[0039]
[Table 8]

		オートクリアタイム設定レベル				
		L1	L2	L3	L4	L5
難易度	0	無し 60	無し 120	無し 180	無し 240	無し 300
判定結果	1	警告 —	警告 —	警告 —	警告 —	警告 —

パターンD
パターンE

[0040] In the case where this 2nd invention and the 5th invention are used, as shown in Table 8, the easy table data which determine the existence and the auto clear time of warning according to the judgment result of said difficulty judging means and the setting level of the OTOKURIA OTOKURIA time which a user sets up are used. When the user is setting setting level of an auto clear time to L3 by the case where a difficulty judging means is Pattern D, an auto return is carried out in 180 seconds. Moreover, when the user is setting setting level of an auto clear time to L5 by the case where a difficulty judging means is Pattern E, and it is going to perform the next copy actuation, as shown in drawing 7 , "frame deleting setup and variable power are set as the basic guidance display 112. Does it continue? Like ", the alarm display which stimulates the check of a setup of operation on a screen is performed, and copy actuation begins by pushing the after start key.
[0041]
[Effect of the Invention] If this 1st invention is used, since the difficulty of the setting operating mode which the user set up will be judged and an auto clear time will be determined Since the reset time to an initialization operating mode will become short if the setting operating mode which the user set up is easy, and the time amount holding the setting operating mode will become long if a setting operating mode is complicated An immediately reproducible setting operating mode is cleared for a short time, and the setting operating mode which time and effort requires for setting up again has time allowances until it is cleared.
[0042] If this 2nd invention is used, the difficulty of the setting operating mode which the user set up will be judged. If the setting operating mode which the user set up is easy and an auto clear time will pass, the setting operating mode of the image formation equipment concerned will be returned to an initialization operating mode. Since the alarm display which stimulates a check will be performed if a setting operating mode is complicated It becomes without an immediately reproducible setting operating mode being cleared for a short time, and the setting operating mode which time and effort requires for setting up again not being cleared, and copying, while the next operator has been a complicated setup, and carrying out futility of a form.
[0043] If this 3rd invention is used, since the difficulty judging means used by the 1st invention or invention of the 2nd judges difficulty by comparing the setting operating mode decided beforehand with the setting operating mode which the user set up, it can perform the judgment of exact difficulty.
[0044] In the 4th invention, since it judges with its difficulty being low, and the setting operating mode which can set up the difficulty judging means used by the 1st invention or invention of the 2nd in a short time having high difficulty when a setup takes time amount, the judgment of difficulty is attained according to a user's skillful condition.
[0045] If this 5th invention is used, since the difficulty judging means used by the 1st invention or invention of the 2nd judges with difficulty being high when the specific setting operating mode decided beforehand is operated, the judgment of difficulty of it will be attained for little information.
[0046] Although these auto clear times are considering as the time amount after the actuation before image formation equipment is completed, they are good also as time amount after setting actuation is completed. Moreover, except an auto clear time, even if it applies to auto shutoff time amount (time amount until it goes into the power-saving mode, such as the fixing power source OFF and Display OFF, automatically), sufficient effectiveness is acquired.

[Translation done.]